Powder Metallurgy

USSR

UDC: 621.77.2

ZHIVOV, L. I., PAVLCY, V. A., SHCHERBINA, V. V., KOLESNIK, F. I. and MAKOGON, V. N., Zaporozh ye Machine Building Institute

"Conditions for Hot Extrusion of Rods From Cermet Titanium"

Kiev, Poroshkovaya metallurgiya, No 11, Nov 71, pp 16-21

Abstract: Rods and shapes of intricate cross sections with a density close to monolithic metal may be produced from pre-compressed titanium powder briquettes with the use of appropriate equipment and the knowledge of the power energy parameters of hot extrusion (including force and work of deformation). Characteristic of hot forming of powdered metals and specifically of titanium powder is the fact that the density of the briquette in the first (nonstationary) phase of extrusion is lower than that of monolithic metal. In the second, quasi-stationary region, the densities of both the cake and the finished product are commensurate and approach that of monolithic metal. The stress-deformation relationship characteristic of a solid metal may be applied with reasonable accuracy to powdered materials. Considered here is the hot extrusion of pure titanium

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USSR ZHIVOV. L. I., et al. Poroshkovaya metallurgiya, No 11, Nov 71, pp 16-21

powders and those alloyed with tungsten carbide (up to 30%). Use is made of correction coefficients for crank press tests to correlate the data on stresses and deformations by simple mathematical relationships. A romograph is proposed for rapid determination of both specific and over-all stresses of extrusion of cermet materials. (5 illustrations, 1 table, 2 bibliographic references).

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USSR

UDC 539.67

TEPLOV, V. A., MALYSHEV, K. A., and PAVLOV. V. A.

"Measurement of the Amplitude Dependence of Internal Friction in an Alloy With a Thermoelastic Martensite"

Sb. "Vnutrenneye treniye v metallicheskikh materialakh" (Internal Friction in Metallic Materials), Moscow, Izd-vo "Nauka," 1970, pp 156-159

Abstract: Results are presented of measurements of the internal friction in Cu-14.5%, Al-3.4%, Ni and Ti-54.5% in the range of $1-20 \times 10^{-4}$ amplitudes. It is shown, that high internal friction in alloys is governed by motion of the interphase boundary under a variable load and by variation of a thin, twinning martensite structure.

The variation of slope of the internal friction amplitude dependence characteristic is explained by a saturation of inelastic processes, generating high friction. 3 figures, 13 references.

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USSR

UDO 621.385.623.4

BRODULENKO, I.I., PAYLOY, V.A.

"Concerning The Effect Of The Feedback Factor On The Power And Efficiency Of A Low-Power Trunsit Oscillating Klystron"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVOh (Elactronic Technology. Scientific-Technical Collection. Microwave Electronics), 1970, No 7, pp 25-31 (from RZh--Elektronika i yeye primeneniye, No 11, November 1970, Abstract No 11A127)

Translation: On the basis of kinematic theory, the effect is investigated of the feed-back Sactor on the power and efficiency of a two-cavity transit oscillating klystron. The results of the analysis are given in the form of simple formulas, expressions, and graphics, which give a clear idea of the dependence of the power and efficiency of the klystron on the feedback factor and other parameters, and also of the maximum possible values of the efficiency. 4 ref. Author's summary.

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Transformation and Structure

USSR

UDC 620.187

VIL'DANOVA, N. F., NOSKOVA, N. I., PAVLOY, V., A., BELOUSOV, N. N., and MIKHEYEVA, Ye, N., Institute of Metal Physics, Academy of Sciences USSR

"Electron Microscope Study of Al-Mg Alloys Cooled With Varying Rates From the Homogenization Temperature"

Sverdlovsk, Fizika Metallov i Metallovedeniye, No 6, Vol 30, Dec 70, pp 1264-1269

Abstract: Changes were investigated in the structure of alloys Al+Mg(11%) and Al+Mg(11%)+Ti, Zr, be, Mn (0.1%) which result in connection with the use of different cooling rates after a homogenizing anneal. The cast and heat-treated alloys were rolled into plates measuring $20 \times 50 \times 0.2$ mm and then subjected to a homogenizing anneal at 435° C for 20 hours with different cooling rates: quenched in cold water (+20), quenched in hot water (+90), and air cooled.

Thin foils of the alloys were investigated by electron microscopy. The foils were made from plates, which had been heat treated, by chemically thinning them in a 40% solution of sodium hydroxide with subsequent electropolishing 1/2

USSR

VIL'DANOVA, N. F., et al, Fizika Metallov i Metallovedeniye, No 6, Vol 30, Dec 70, pp 1264-1269

in an electrolyte at +70 C. The investigation was conducted with an SEM-3 microscope.

It was shown that aging processes take place in these alloys independently of the cooling rate and grains are detected in the structure along the boundaries and in the volume of which there are precipitations. Complex alloying accelerates aging: in the structure of the alloy after cooling at the maximum rate practically no grains were observed without precipitates, but congulation of the precipitated phases takes place. A decrease in the cooling rate leads to a fuller passage of aging processes and to phase congulation in all the alloys.

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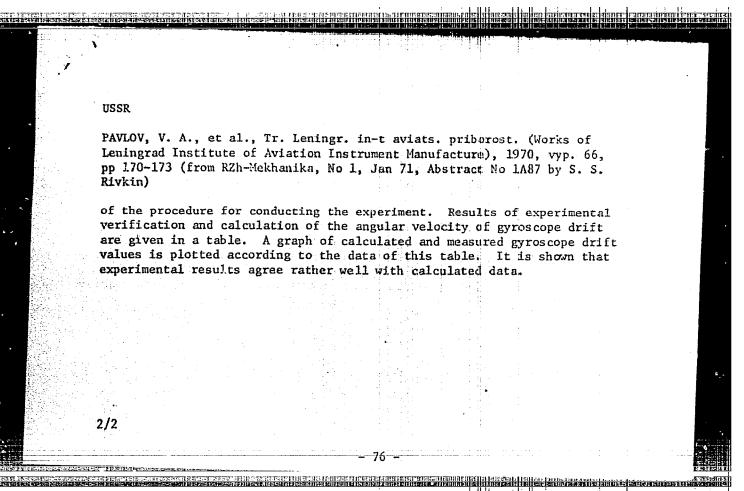
PAVLOV, V. A., VANYUKOV, S. A., and KUDRYASHOV, G. N.

"The Influence of Aerodynamic Drag Forces on Gyroscope Drift in the Event of Skewness of the Principal Axis"

Tr. Leningr. in-t aviats. priborost. (Works of Leningrad Institute of Aviation Instrument Manufacture), 1970, vyp. 66, pp 170-173 (from RZh-Mekhanika, No 1, Jan 71, Abstract No 1A87 by S. S. Rivkin)

Translation: The article presents results of an experimental verification of the appearance of systematic drift of a two-degree-of-freedom astatic gyroscope around the outer axis of suspension, caused by aerodynamic drag forces in the event of a skewed principal axis. An expression is given for the moment of aerodynamic drag forces appearing during rotation of the rotor, and its physical nature is ascertained. It is shown that the component of this moment along the axis of rotation of the inner gimbal ring, which appears if the principal axis of the gyroscope is skewed, gives rise to azimuthal gyroscope drift. An expression is given for the angular velocity of this drift. A description is given of the mock-up for laboratory verification of the gyroscope drift. An account is given of the nature 1/2

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1/2 036 UNGLASSIFIED PROCESSING DATE--020CT70

AUTHOR-(03)-ZHIVOY, L.I., SKUSNYAKOV, YU.N., PAVLOV, V.A.

COUNTRY OF INFO--USSR

SUURCE--PUROSHKOVAYA MET., JAN. 1970, (1), 92-97

DATE PUBLISHED----70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS-BORON NITRIDE, COPPER, CERMET, REFRACTORY COMPOUND, CERAMIC PROCESSING, DEFORMATION RATE, COPPER TUBE

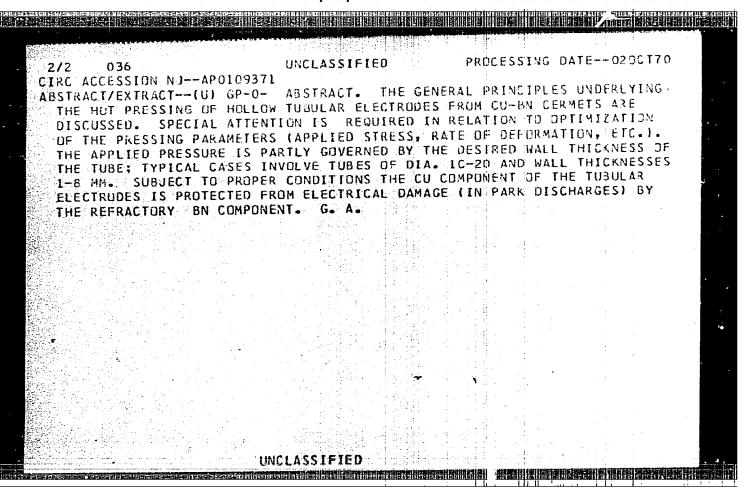
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PROXY REEL/FRAME--1990/1287

STEP NO--UR/0226/70/0001/001/0092/0097

CIRC ACCESSION NO--APO109371

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Mechanical Properties

USSR

UDC 669.35'71'24:534.283

TEPLOV, V. A., MALYSHEV, K. A., PAVLOV, V. A.

"Damping in Copper-Aluminum-Nickel Alloys and Its Causes"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 34, No 1, Jul 72, pp 166-177.

Abstract: The damping properties of Cu-Al-Ni alloys containing 9.18 to 14.45 wt.% Al and from 0.95 to 6.5 wt.% Ni were determined on a pendulum test machine. The alloys have high specific damping capacity -- from 15 to 75%. Damping is explained by losses in the energy of mechanical oscillations as the boundaries of twin-like bands and interphase boundaries move. In certain cases, these materials can be used as structural damping materials. Alloys containing from 9 to 13.2% Al and about 2.4% Ni have good damping and acceptable mechanical properties.

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PROCESSING DATE—20NOV70

TITLE—DISCRETENESS OF THE FIELD DISTRIBUTION OF THE INTENSITY OF THE

BARKHAUSEN EFFECT OF YITRIUM FERRITE -U
AUTHOR-(03)-PAVLOV, V.F., RYABINKIN, L.N., SMOLIN, R.P.

CCUNTRY OF INFO--USSR

SOURCE--ZH. TEKH. FIZ. 1970, 40(4), 859-61

DATE PUBLISHED----70

SUBJECT AREAS—ELECTRONICS AND ELECTRICAL ENGR., EARTH SCIENCES AND UCEANOGRAPHY, PHYSICS TOPIC TAGS—YTTRIUM COMPOUND, FERRITE, SINGLE CRYSTAL, GARNET, MAGNETIC PROPERTY

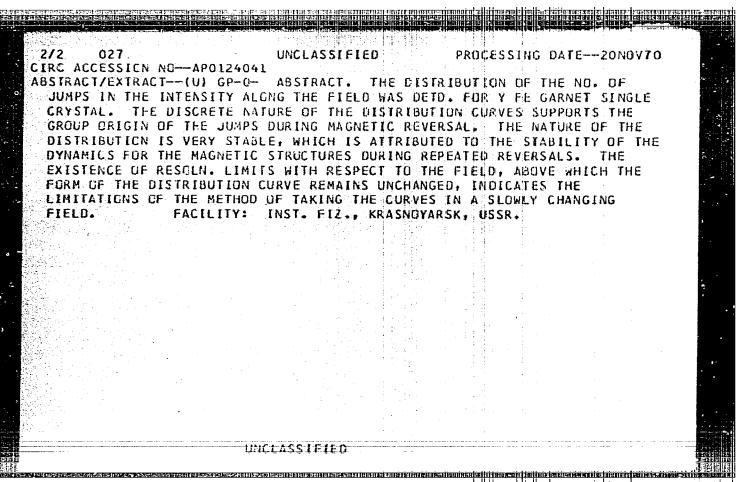
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Acc. Nr. AP0113203 Abstracting Service: 6/10 Ref. Code CHEMICAL ABST. 180072

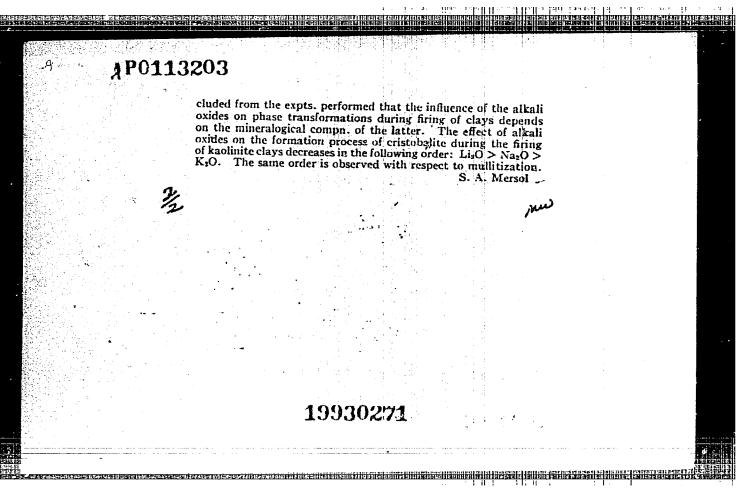
135906g Influence of lithium oxide, sodium oxide, and potassium oxide additives on phase transformations taking place during the firing of clays of various mineralogical compositions.

Paylov, V. F.; Bystrikov, A. S.; Andreeva, N. I. (USSR).

Section Keram. 1970, 27(2), 38-40 (Russ). The results of investigating the effect of Li₂O, Na₁O, and K₂O on phase transformations of clays are given. These addns, were introduced in 2% amts. The samples were fired in a shielded Silit furnace at a temp. of 1050-1300°, whereupon they were cooled in the furnace. The fired samples were investigated by x-ray diffraction with a URS-50I instrument and Cu-radiation (Ni-filter). Samples of rock kaolinite clay without addns, consist of an amorphous phase and quartz. Addn. of Li₂O produces intensification of the process of crystn. of mullite and cristobalite. The Na₂O addn. has a similar effect, except to a lesser degree. Similar results are obtained for clays of other compns. Samples with K₂O addns, and one show the presence of cristobalite. It is thus shown that addns. of Li₂O, Na₂O, and K₃O have a marked effect on the mullitization process, by decreasing the temp. of formation of mullite and by somewhat increasing its content. It is thus con-

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REEL/FRAME 19930270



UDC 666.3.022.64

PAVLOV, V. F. (Candidate of Technical Sciences), BYSTRIKOV, A. S. (Candidate of Technical Sciences), and ANDREYEVA, N. I. (Engineer), NIIStroykbramika

"Effect of Impurities Mi20, Na20 and K20 on Phase Transformations. During Firing of Clays of Different Mineralogical Composition"

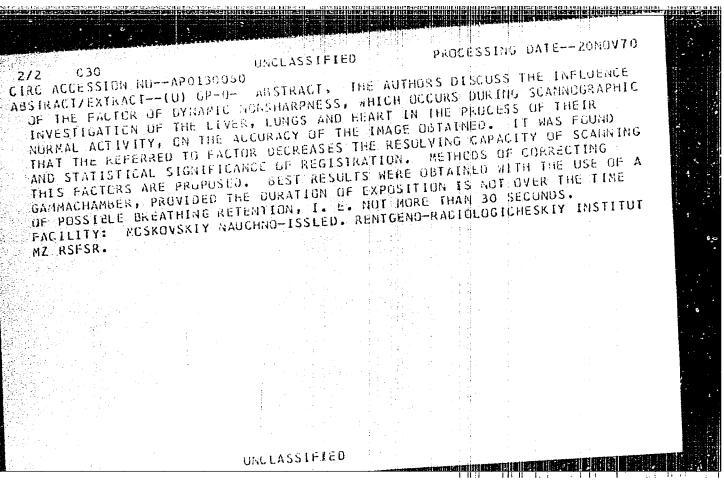
Moscow, Steklo i Keramika, No 2, Feb 70, pp 38-40

Abstract: The article presents results of an investigation of the effect of alkali oxides on phase transformations during firing of clays of different mineralogical composition. The clays were of the following mineralogical composition: kamenskaya -- kaolinite; vladinirovskaya -- montmorillonite-kaolinite; tselinogradskaya -- kaolinite-hydromica. Impurities were introduced in the form of carbonates in 2% quantities converted to oxides. The impurities were thoroughly mixed with clay. Specimens in the form of disks 18 mm in diameter and 4-5 mm thick were formed from the prepared mixtures. The specimens were fired in a shielded silit (silicon carbide) furnace at the temperature 1050-1300 and they are cooled together with the furnace. It is shown that the cristobalitizing and mullitizing action of the impurities depends on the mineralogical composition of the clays. It is established that with the increase in the weight and radius of cation its cristobalitizing action decreases. The alkali cations have similar effect on the process of mullitization. 1/1

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202330013-5"

C30 UNCLASSIFIED PROCESSING DATE-20NOV70 FITLE-THE INFLUENCE OF THE FACTOR OF DYNAMIC MONSHARPNESS ON THE SCANNEGRAPHIC INFORMATION -U-AUTHOR-(04)-ZUBUVSKIY, G.A., PAVLUV, V.G., FUKHT, A.S., KASATKIN, YU.N. CCUNTRY OF INFO-LSSR SCURCE--MEDITSINSKAYA RADIOLOGIYA, 1970, VOL 15, NR 6, PP 41-49 DATE PUBLISHED ---- 70 SUBJECT AREAS-BIGLEGICAL AND MEDICAL SCIENCES TOPIC TAGS-RADIGGRAPHY, LIVER, LUNG, HEART, IMAGE CONTRAST CONTROL MARKING--NO RESTRICTIONS DECUMENT CLASS--UNCLASSIFIED PROXY REEL/FRAME--3003/1025 STEP NO--UR/0241/70/015/006/0041/0049 CIRC ACCESSION NO--APO130060 UNCLASSIFIED

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202330013-5"

UNCLASSIFIED PROCESSING DATE--13NOV70 TITLE--CALCULATION AND EVALUATION OF THE PROPERTIES OF FOCUSING CCLL IMATORS -U-AUTHUR-(03)-PAVLCY, V.G., FOKHT, A.S., ZUBOVSKIY, G.A. COUNTRY OF INFO--USSR SOURCE--MEDITSINSKAYA RADIOLOGIYA, 1970, VOL 15, NR 6. PP 78-82 DATE PUBLISHED----70 SUBJECT AREAS -- BIOLOGICAL AND MEDICAL SCIENCES TOPIC TAGS--COLLIMATOR, DIAGNOSTIC EQUIPMENT, RADIOACTIVITY CONTROL MARKING--NO RESTRICTIONS DOCUMENT CHASS--UNCLASSIFIED PROXY REEL/FRAME--3002/1513 STEP NO--UR/0241/70/015/006/0078/0082 CIRC ACCESSION NO--APOL28908 _____UHCLASSIFIED: -

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USSR

UDC 531.01

PAVLOV, V. G.

"Utilization of the Concept of the Infinitesimal Transformation in Studying the Sensitivity of Linear Dynamic Systems"

Tr. Kazan. aviats, in-ta (Works of the Kazan' Aviation Institute), 1972, vyp. 149, pp 35-39 (from RZh-Mekhanika, No 6, Jun 7, Abstract No 6A87)

Translation: The new method of studying the sensitivity of linear systems to variations of their parameters is proposed, the basic idea of which consists in the fact that the rated solution is imbedded in a set of solutions, the closeness of which is determined by the possibility of considering them as the result of infinitesimal transformations. It is demonstrated that the problem of studying the sensitivity of linear systems to variations of parameters reduces to the problem of constructing a group of continuous transformations of the phase space and a group of continuous transformations of the parameter space if we consider the altered systems and the rated system similar in the sense of closeness according to S. Lie. The bibliography has 5 entries.

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USSR

WDC 52-50

PAVLOY, V. G.

"Group Properties and Invariant Solutions of Bellman Equations in the Problem of Synthesis of Second Order Optimal Control Systems"

Kazan°, Aviatsionnaya Tekhnika, No 4, 1972, pp 21-27

Abstract: In dealing with the problem of synthesizing second order optimal control systems, group properties were studied and sets of invariant solutions of the Bellman equations were found. An equation which realizes the movements of the system and minimizes the control functions was set up. A group was then constructed, permitting Bellman equations and determined by Lee algebra, whose infinitesimal operator coordinates did not depend on the set of functions determining the functional and the right side of the system equation. The invariant partial solutions of the Bellman equations were constructed in correspondence with the basic operators found previously. As an example, the use of these results for the synthesis of optimal roll control of flight wehicles was illustrated, and an exact solution was obtained.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202330013-5"

USSR

UDC: 621.376.4(088.8)

ZHENEVSKIY, Yu. P., MUSAYELYAN, S. A., NEVDYAYEV, L. M., and PAVLOV, V. G.

"Second-Generation Device for Demodulating Signals with Pulse-Phase Modulation"

Avt. sv. SSSR (Author's Certificate USSR) Class 21a⁴, 42; 21a¹, 36/08, (H 03 d 3/24, H 03K 9/04), No. 275170, Application 12.07.68, Publication 12.10.70 (from RZh-Radiotekhnika, No. 3, March 71, Abstract No. 3D94P)

Translation: A device is proposed, which contains a sawtooth voltage oscillator connected to a signal source, a switching circuit with a memory element controlling a source of synchronization, an interpolator, a low-frequency filter, for example, a trigger, and a delay line. To reduce the noise at the communication channel output caused by the random lost operating pulses at the input of the device, the synchronization source is connected to the switching circuit through a coincidence network connected through the control input to the trigger, the switching input of which is directly connected to the signal source while the input of the counter is connected through the delay line to the synchronization source.

USSR

UDC 619:616.983.43-084.47

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SYUSYUKIN, A. A., KRAVETS, I. K., TSVETKOVA, N. Ye., and PAVIOV. V. G., All-Union Scientific Research Institute of Food-and-Mouth Disease

"Immunogenic Properties of an Experimental Food-and-Mouth Disease Vaccine

Moscow, Veterinariya, No 5, May 71, pp 40-42

Abstract: The results of a study of the immunogenic character of an inactivated vaccine prepared from foot-and-mouth disease virus A22, strain ood, grown in BNK cells, are reported. Virus from the 6-7th and 102-103 passages was used in the form of a centrifuged cultural liquid. The vaccine used consisted of virus (50%), a 6% solution of aluminum hydroxide (40%), and glycerine (10%). After adsorption of the virus, the pH of the mixture was adjusted with glycine buffer to 8.6-8.8, and formalin was added at a final concentration of 0.05%. The virus was inactivated for 48 hrs at 20°C. After the inactivation, glycerin was added, and in some series, saponin. The vaccine was tested in cattle and guinea pigs. It was found that all six test vaccines had high immunogenic properties. In five test vaccines, the ID50 for guinea pigs was 0.15-0.19 ml, and only in one test vaccine was it 0.26 ml. Inactivated vaccines with saponin (2.5 mg per 10 ml vaccine) from virus of the oth and 102d passages grown from a single-layer cell culture under stationary

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USSR

SYUSYUKIN, A. A., et al, Veterinariya, No 5, May 71, pp 40-42

conditions was tested on guinea pigs. The vaccine from virus of the 6th passage was three times more effective than that from virus of the 102d passage. The ID50 in the first case was 0.25 ml, that in the second case was 0.76 ml. In general, it was found that vaccine from virus of the earlier passages is more immunogenic than vaccine from virus of later passages.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202330013-5"

USSR

UDC: 621.376.4:621.376.55

ZHENEVSKIY, Yu. P., MUSAYELYAN, S. A., NEVDYAYEV, L. M., PAYLOV, V. G.

"A Device for Demodulating Signals With Pulse Position Modulation of the Second Kind"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 22, 1970, Soviet Patent No 275170, Class 21, filed 12 Jul 68, p 42

Abstract: This Author's Certificate introduces a device for demodulating signals with pulse position modulation of the second kind. The unit contains a sawtooth voltage generator connected to the signal source, a keying circuit with memory element controlled by a synchronization source, an interpolator, e. g. a low-frequency filter, a flip-flop, and a delay line. As a distinguishing feature of the patent, the device is designed for reduction of noises at the output of the communication channel caused by random disappearances of working pulses at the input of the device. The synchronization source is connected to the keying circuit through a coincidence gate whose control input is connected to the flip-flop, the trigger input of the flip-flop being connected directly to the signal source. The counting input of the flip-flop is connected through the delay line to the synchronization source.

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USSR

UDC: 621.374.5(088.8)

BOTYINNIK, A. Ye., PAVLOV, V. G., Moscow Electrical Engineering Institute of Communications

"A Device for Regulating the Transmission Ratio of Continuous Signals"

USSR Author's Certificate No 262189, filed 18 Oct 68, published 27 May 70 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 16247 P)

Translation: This Author's Certificate introduces a device for regulating the transmission ratio of continuous signals. The device contains a controlled element and a threshold element. To improve control of continuous signals while simultaneously simplifying the device, a network made up of a slave pulse oscillator, a resettable counter and a flip-flep connected in series is connected between the output of the threshold element and the controlling element of the controlled circuit. The controlling inputs of the counter and flip-flop are connected to the output of the reset pulse oscillator.

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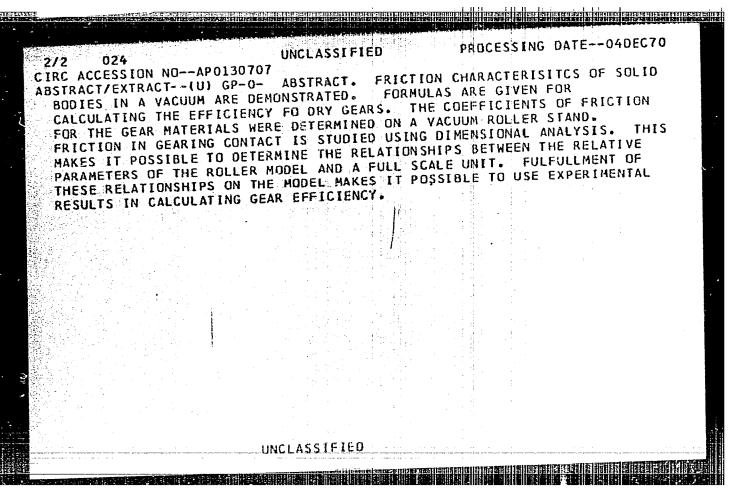
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USSR	UDC 533.652/.661.013	
PAVLOV, V. G.		
"Equivalent Natural Longi	itudinal Motions of an Aircraft"	
Tr. Kazan. aviats. in-ta Vypusk (Issue) 119, 1970,	, pp 03-09 (IIOm Rett-Hekitatizes, 119)	
Vypusk (Issue) 119, 1970, Abstract No 12B349, by G		
Vypusk (Issue) 119, 1970, Abstract No 12B349, by G.	. S. Aronin) now methods of studying linear dynamic systems	
Vypusk (Issue) 119, 1970, Abstract No 128349, by G. Translation: Based on kr by using group theory, ed	. S. Aronin) nown methods of studying linear dynamic systems quivalent natural longitudinal perturbed motions ditions of their existence are established.	
Vypusk (Issue) 119, 1970, Abstract No 12B349, by G. Translation: Based on kr by using group theory, ed are examined and the cond	. S. Aronin) nown methods of studying linear dynamic systems quivalent natural longitudinal perturbed motions ditions of their existence are established. s the coincidence of trajectories in space with	
Vypusk (Issue) 119, 1970, Abstract No 12B349, by G. Translation: Based on ki by using group theory, ec are examined and the conc Equivalence is defined as phase coordinates: "velo	. S. Aronin) nown methods of studying linear dynamic systems quivalent natural longitudinal perturbed motions ditions of their existence are established. s the coincidence of trajectories in space with ocity — angle of attack — angle of pitching" popular linear transformation. Linearized	
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Vypusk (Issue) 119, 1970, Abstract No 12B349, by G. Translation: Based on known by using group theory, eare examined and the conceptuation of the sequivalence is defined as phase coordinates: "velowith an accuracy to the sequivalence of the sequi	nown methods of studying linear dynamic systems quivalent natural longitudinal perturbed motions ditions of their existence are established. s the coincidence of trajectories in space with ocity — angle of attack — angle of pitching" nonsingular linear transformation. Linearized equations of longitudinal motion with constant ed in the ordinary dimensionless form. A particutionum group of linear transformations is examined.	
Vypusk (Issue) 119, 1970, Abstract No 128349, by G. Translation: Based on known by using group theory, examined and the conception of the second seco	. S. Aronin) nown methods of studying linear dynamic systems quivalent natural longitudinal perturbed motions ditions of their existence are established. s the coincidence of trajectories in space with ocity — angle of attack — angle of pitching" nonsingular linear transformation. Linearized assertions of longitudinal motion with constant	

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e en en en en experimentalis de mandrement de mandrement de mandrement de la mandrement de la mandrement de ma UNCLASSIFIED PROCESSING DATE--DADECTO TITLE-FRICTION AND EFFICIENCY OF GEARS IN A VACUUM -U-AUTHOR-(02)-DROZDOV, YU.N., PAVLOV, V.G. COUNTRY OF INFO--USSR SOURCE-MOSCOW, VESTNIK MASHINOSTROYENIYA, NO 2, 1970, PP 7-9 DATE PUBLISHED----70 SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR TOPIC TAGS-GEAR, MATHEMATIC EXPRESSION, FRICTION COEFFICIENT, MODEL, VACUUM TECHNOLOGY CONTROL MARKING--NO RESTRICTIONS STEP ND--UR/0122/70/000/002/0007/0009 DOCUMENT CLASS--UNCLASSIFIED PROXY REEL/FRAME--3003/1880 CIRC ACCESSION NO---APO130707 UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202330013-5"





621.3(3.53(088.8) UDC

MUSAYELYAN, S. A., MAZURENKO, I. V., SHARYAPOV, Sh. A., PAVLOV, V. G.

"A Relaxation Oscillator"

USSR Author's Certificate No 259141, Filed 7 Au 68, Published 28 Apr 70 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10G170 P)

Translation: A relaxation oscillator is proposed with pulse bridge elements connected in the collector-base circuits of the transistors in the oscillator. To provide conditions for easy self-excitation of the oscillator and improve operational stability, a dynamic control circuit is connected between one of the poles of the power supply and the common bus. This control circuit is made up of a resistor and capacitor connected in series, the common point being connected to the bases of the transistors in the oscillator through auxiliary resistors, and to the collectors of these same transistors through semiconductor diodes. To improve the operational reliability of the oscillator on low frequencies, the additional resistors are connected to the capacitor thorugh an emitter follower.

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CIA-RDP86-00513R002202330013-5" APPROVED FOR RELEASE: 08/09/2001

USSR

PAVLOV, V. G.

"Sliding Friction During Rolling with Sliding of Bodies in a Vacuum"

Sb. Nauch. tr. Perm. Politekhn. In-t. [Collected Scientific Works of Perm' Polytechnical Institute], 1971, No 102, pp 38-42, (Translated from Referativnyy Zhurnal, Mekhanika, No 10, 1972, Abstract No 10 A78, by V. A. Samsonov).

Translation: An experimental installation is described for investigation of friction during rolling of bodies with sliding (friction transmission in a vacuum. The parameters of the installation are: vacuum in operating chamber 10^{-8} mm h.g., maximum torque 5 kgm, pressing force on rollers up to 200 kg, sliding velocity up to 680 cm/sec. The installation was used to determine the coefficient of friction of certain materials. The limits of the coefficient of sliding friction were determined: for iron (with glass) 0.1-0.4, Fe(CaF₂) 0.27-0.43, etc. Qualitative information are presented on the behavior of the coefficient of friction with increasing velocity and normal pressure for various materials.

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USSR

UDC 532.5

KRASIL'NIKOV, V. A., PAVLOV, V. I.

"Relaxation of Gravity Waves Resulting from Interaction with Capillary Waves"

Vestn. Mosk. Un-ta. Fiz., Astron. [Moscow University Herald, Physics, Astronomy], Vol 13. No 2, 1972, pp 235-237, (Translated from Referativnyy Zhurnal, Mekhanika, No 11, 1972, Abstract No 11 B470 by Yu. L. Vorob'yev).

Translation: The influence of surface tension on the process of propagation of gravity waves is studied. Assuming that the number of interacting gravity and capillary waves is high, a statistical approach is used. If the non-linearity is not too great, the influence of the high frequency portion of the spectrum on the low frequency portion is negligible, and in this case expressions are produced for the full energy and amplitudes of the perturbed surface of the liquid. A formula is produced for determination of the relaxation time of the gravity wave and numerical estimates are made, the results of which are quite similar to the observed values. 6 Biblio. Refs.

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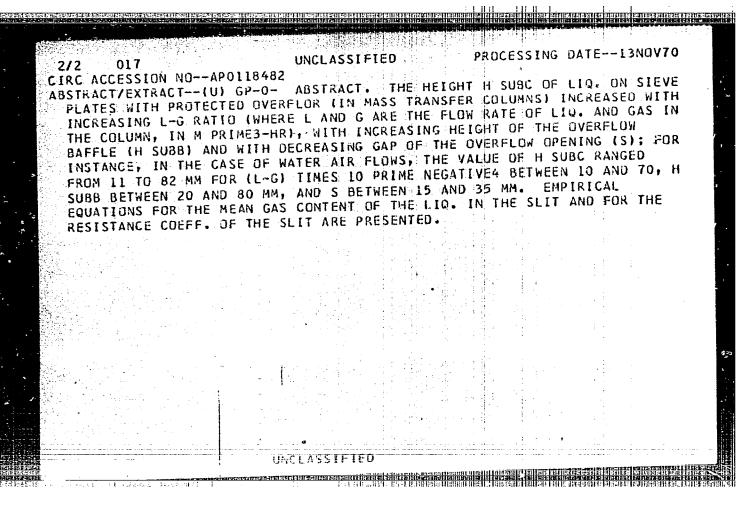
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101186g Effect of thermal pretreatment and crystallization conditions on structure formation in linear polyurethane. Pavlov, V. L.: Lipatov, Yu. S. (Inst. Khim. Vysokomol. Soedin., Kiev. USSR). Vysokomol. Soedin., Ser. A 1970, 12(1), 89-94 (Russ). The size of polyurethane (I) spherulites increased with the temp. and time of I melt heating prior to crystn. High melt temps. decreased the crystn. rates. Heating I based on disthylene glycol and hexamethylene discoyanate ≤170° failed to dissolve small fragments of I. Above 170° I melts contained only mol. aggregates. The spherulite growth rates from I melts heated below or above 170° were different.

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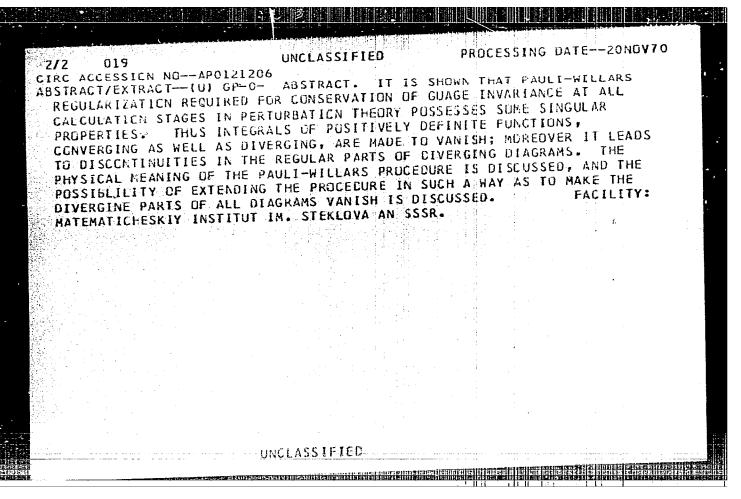
REEL/FRAME 19821168

PROCESSING DATE--13NOV70 UNCLASSIFIED TITLE--DETERMINATION OF LIQUID HOLDUP ON SIEVE PLATES WITH PROTECTED 1/2 017 OVERFLOW -U-AUTHOR-(02)-PAVLOV, V.P., TRUBKIN, V.YE. COUNTRY OF INFO-USSR SOURCE--KHIM. PROM. (MOSCOW) 1970, 46(3), 217-19 DATE PUBLISHED-----70 성장하는 4년 전상으로 나는 . SUBJECT AREAS -- CHEMISTRY, PHYSICS TOPIC TAGS--HASS TRANSFER, CHEMICAL PLANT EQUIPMENT, TWO PHASE FLOW, HYDRAULIC RESISTANCE CONTROL MARKING--NO RESTRICTIONS DOCUMENT CLASS--UNCLASSIFIED STEP NO--UR/0064/70/046/003/0217/0219 PROXY REEL/FRAME--1996/1495 CIRC ACCESSION NO--APOL18482 UNCLASSIFIED



UNCLASSIFIED PROCESSING DATE--20NOV70 TITLE--GAUGE INVARIANCE AND REGULARIZATION -U-AUTHOR-(03)-MEDVEDYEV, B.V., PAVLOV, V.P., SUKHANOV, A.D. CCUNTRY OF INFO--USSR SOURCE-ZHURNAL EKSPERIMENTAL NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58, NR 6, PP 2099-2109 DATE PUBLISHED -----70 SUBJECT AREAS -- MATHEMATICAL SCIENCES TOPIC TAGS-PAULI EXCLUSION PRINCIPLE, PERTURBATION THEORY, INTEGRAL FUNCTION, INTEGRAL CALCULUS CENTREL MARKING-NO RESTRICTIONS DOCUMENT CLASS--UNCLASSIFIED PROXY REEL/FRAME--1998/0534 STEP NO--UR/0056/70/058/006/2099/2109 CIRC ACCESSION NU--APO121206 UNCLASSIFIED:

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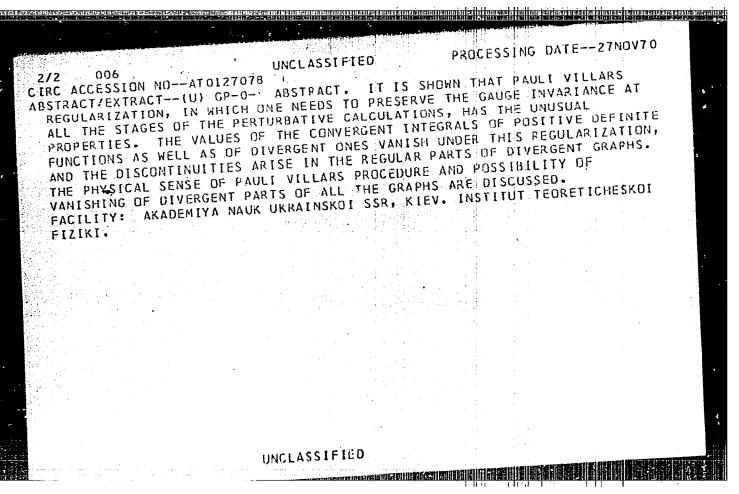
PROCESSING DATE--27NOV70 UNCLASSIFIED TITLE--GAUGE INVARIANCE AND REGULARIZATION -U-AUTHOR-(03)-MEDVEDEV, B.V., PAVLOV, V.P., SUKHANOV, A.D. COUNTRY OF INFO--USSR SOURCE--ITF 70 15 CONF 691035 7. DEP. CESTI FROM CONFERENCE ON HIGH ENERGY PHYSICS AND THEORY OF ELEMENTARY PARTICLES, KIEV, USSR DATE PUBLISHED----70 SUBJECT AREAS--PHYSICS TOPIC TAGS--PERTUBATION METHOD, ACCURACY STANDARD, CONVERGENT SERIES

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED PROXY REEL/FRAME--3001/1582

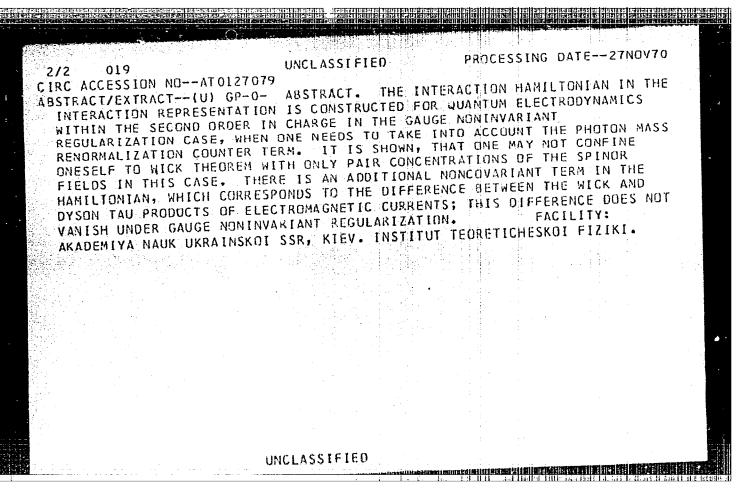
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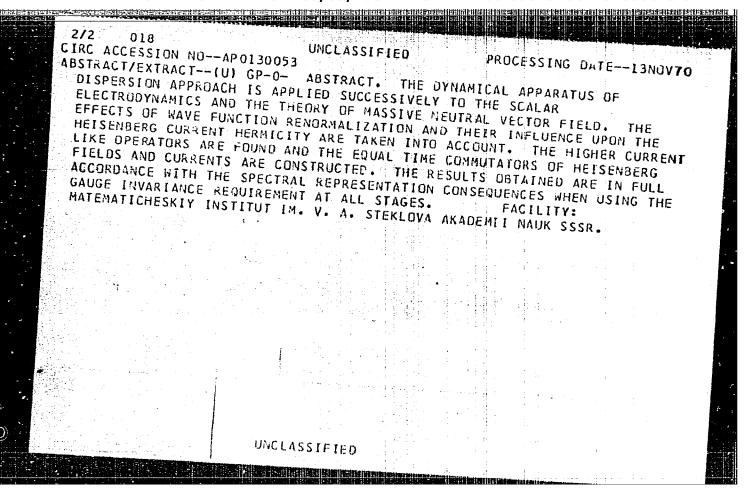
PROCESSING DATE -- 27NOV70 TITLE--ON THE HAVILTONIAN FORMULATION OF THE QUANTUM ELECTRODYNAMICS WITH GAUGE NON INVARIANT REGULARIZATION -U-AUTHOR-(02)-PAVLOV, V.P., SUKHANOV, A.D. COUNTRY OF INFO--USSR SOURCE--(ITF,70,16) (CONF,691035,8). DEP. CESTI FROM CONFERENCE ON HIGH ENERGY PHYSICS AND THEORY OF ELEMENTARY PARTICLES, KIEY, USSR DATE PUBLISHED ----- 70 SUBJECT AREAS--PHYSICS TOPIC TAGS--HAMILTONIAN, QUANTUM ELECTRODYNAMICS, SPINOR, ELECTROMAGNETIC FIELD CONTROL MARKING--NO RESTRICTIONS STEP NU--UR/0000/70/000/000/0009/0009 TOCUMENT CLASS--UNCLASSIFIED PROXY REEL/FRAME--3001/1583 CIRC ACCESSION NO--AT0127079 UNCLASSIFIED

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UDC: 534.2

MERKULOVA, V. M., PAVLOV, V. S.

"Variation of Absorption of Sound in Some Rocks up to $400^{\rm O}{\rm C}$ as a Function of Temperature"

Tr. Taganrog. radiotekhn. in-ta (Works of Taganrog Radio Engineering Institute), 1973, vyp. 34, pp 131-145 (from RZh-Fizika, No 5, May 73, abstract No 5Zh566 by V. I. Uchastkin)

Translation: A torsional pe dulum on a frequency of about one hertz is used to study the internal friction (with accuracy of temperature control within ±1°C) in granite-gneiss, metamorphic shale, and quartzite as a function of temperature. It is noted that specimens made in the form of prismatic bars were washed and dried in a vacuum at 80°C before testing. The paper gives the content of impurities in quartz and obsidian checked by a spectral method. It is shown that with heating above 100°C internal friction decreases, repeated measurement showing a depression in the initial level. It is noted that for quartzite heated to 400°C the internal friction showed almost no change in the repeat cycle of measurements. Obsidian shows a broad temperature maximum of internal friction which is independent of the cycle of measurements. It is pointed out that the irreversible change of internal friction with temperature in crystalline rocks is due to release of the liquid phase from the pores and 1/2

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MERKULOVA, M. V., PAVLOV, V. S., Tr. Taganrog. radiotekhn. in-ta, 1973, vyp. 34, pp 131-145

microcracks during heating. It is found that the residual internal friction after heating of specimens to 300-400°C may be due to processes of structural or dislocational relaxation under shear strains. It is shown that the maximum of internal friction in obsidian is caused by diffusion losses -- with the principal contribution from ions of alkali earth elements, especially sodium.

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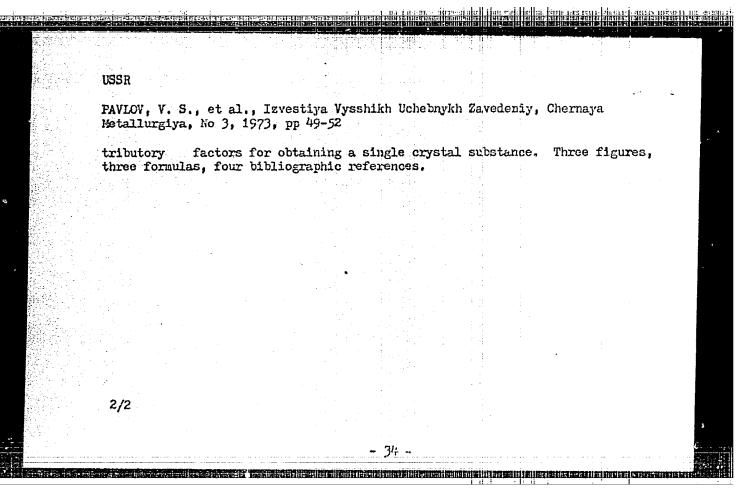
WC 548.522

PAVLOV, V. S., MOCHALOV, M. M., and VORONTSOV, YE. S., Voronezh Polytechnic

"Growing of Fe304 and CoO Crystals in a d-c Electric Arc"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 3, 1973, pp 49-52

Abstract: Single crystals of Fe₂O₄ and CoO were grown in a hermetic chamber with controllable atmosphere by substance transfer from the cathode to the anode of the d-c electric arc. The grown crystals were up to 80 mm long and up to 10 mm in diameter. The temperature and the spectrum of the arc, effects of growing conditions and of the electrode spacing on the substance transfer, and also the behavior of the zero electrode were investigated. Phase analysis indicates that in case of Fe₂O₄ sublimation, single crystals of nonstoichiometric Fe₂O₄ spinel develop on the anode, but a crystal of cubic structure grows, when using CoO in the cpacity of electrodes. The mechanism of substance transfer is discussed by taking into account thermodynamic factors and the directed motion of charged particles, including electrons. The process of sublimation and condensation of substance in an electric arc can be transformed into a peculiar drawing of the crystal from the gaseous medium through the liquid phase. In this case, the high temperature and control of the growing rate and atmospheric pressure can be considered as control of the growing rate and atmospheric pressure can be considered as con-



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UDC 537.226.33:534.286

POSTNIKOV, V. S., KAVERIN, L. D., PAVLOV, V. S., and TURKOV, S. K.

"Internal Friction in Single Crystals of Lithium Niobate at Hertz Frequencies"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 9, Sep 71, pp 1918-1920

Abstract: The authors cite the results of investigating low-frequency internal friction and shift modulus of monocrystalline LiNbO3 in the temperature range of 4.2-400° K. They found two relaxation peaks at temperatures of 300° K (peak A) and 130° K (peak B) on the temperature curve of the internal friction of polydomain samples. The A peak does not exist in the monodomain samples. The activation energy of peaks A and B is 0.7 and 0.14 eV respectively. The authors conclude that peak B is the result of point defects generated in the annealing process. Peak A is explained by the interaction of point defects with 180°-domain boundaries. The experimental results agree quite well with the theoretical ones. The authors use three graphs to illustrate their findings. The article contains 3 illustrations and 5 bibliographic entries.

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